



**Figure 5.** Photographs of hand samples of rock from the old mountain. Scale marked in 10-cm intervals. A, Older dacite. B, Modern dacite. C, Andesite. D, Basalt.

## PRE-ERUPTION STRUCTURE

Cross sections of the volcano as it existed prior to the 1980 eruptions were constructed from geologic maps of the old volcano (C.A. Hopson, written commun., 1980) and measured sections of the 1980 crater (C.A. Hopson, written commun., 1984). Three cross sections trend approximately north-south through the axis of the crater, and one trends approximately east-west perpendicular to the axis (fig. 2). Preliminary cross sections were constructed by Voight and others (1981, 1983) and Moore and Albee (1981).

The structure of the part of the pre-1980 volcano that was removed in the rockslide was relatively simple (figs. 2A,C,E,G). The older, pre-Castle Creek dacite made up the bulk of the mountain and was topped by the andesite and basalt lavas of the Castle Creek and Kalama eruptive

periods. Feeders for the modern dacite domes (Goat Rocks dome and Summit domes) intruded through the older dacite and the andesite and basalt units. According to C.A. Hopson (Hopson and Melson, 1985), the Summit dome erupted into a summit crater at the beginning of the Kalama eruptive period. The volcano rests on well-lithified Tertiary bedrock (Evarts and others, 1987).

The intrusion that was unroofed in the May 18 lateral blast (the cryptodome) deformed the north side of the mountain (fig. 2B). Displacements of various points within a 1.5- by 2.0-km area (called "the bulge"), which were measured by geodetic techniques, showed subhorizontal northerly movements of 1.5-2.5 m/day (Lipman and others, 1981). Comparison of topographic maps made from aerial photographs taken in 1979 and at various times during March-May 1980 (Voight and others, 1981; Jordan and Kieffer, 1981; Moore and Albee, 1981)